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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,774	01/15/2004	Daniel K. Zitting	2822-6022US (01-2)	5475

24247 7590 04/16/2007  
TRASK BRITT  
P.O. BOX 2550  
SALT LAKE CITY, UT 84110

EXAMINER
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LEE, GILBERT Y

ART UNIT	PAPER NUMBER
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3673

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/757,774

Applicant(s)

ZITTING ET AL.

Examiner

Gilbert Y. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 49, 50, 52-69, 91 and 93-130 is/are pending in the application.
- 4a) Of the above claim(s) 5, 10-12, 56, 61, 64-68, 93-98 and 100 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 49, 50, 54, 55, 57-60, 62, 63, 69 and 114-130 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 12, 13, 101, 103, 104 and 108-112 is/are rejected.
- 7) ☐ Claim(s) 9, 105-107 and 113 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

1. The amendment filed 1/17/07 has been entered.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Note please see Examiner's Attachment from office action 5/22/06 for reference characters A and B regarding the first and second flanges.**

2. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawai et al. (US Patent No. 5,050,892).

Regarding claim 1, the Kawai et al. reference discloses a sleeve element (10B) for sealing between a piston (20) and a bore surface (30a) comprising:

a substantially annular body (Fig. 5) including an inner surface, an outer surface, a first end region (region at left most element 14), and a second end region (region at right most element 14), wherein at least a portion of at least one of the inner surface and the outer surface is configured as a bearing surface (e.g. surface of element 10 at 13) oriented to face at least one of the piston element surface and the bore surface (Fig. 5), and wherein a portion of the other surface of the inner surface and the outer surface is sized and configured to maintain circumferential contact with the other of the piston

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element surface and the bore surface (e.g. surface of element 10 in contact with element 20 at 22B);

wherein at least a portion of the first end region of the annular body is configured to be biased laterally in a first direction into a recess (recesses formed with surface 21);

at least one sealing feature (14) formed on the substantially annular body proximate to the at least a portion of the first end region and longitudinally spaced from the bearing surface (Fig. 5), the at least one sealing feature being configured to be biased laterally into the at least one recess (Fig. 6), the at least one sealing feature sized and configured to sealingly engage against a portion of the same surface that the bearing surface is oriented to face (Fig. 6); and

at least one depression (13) wherein at least a portion of the at least one depression is sized, located and configured to lie over the at least one recess (Fig. 6) to provide increased lateral flexure for the biasing of the at least a portion of the first end region into the at least one recess (Fig. 6), the at least one depression positioned proximate to the at least one sealing feature (Fig. 6).

Regarding claim 2, the Kawai et al. reference discloses the at least one sealing feature including a surface (surface of elements 14 in contact with bore surface 30a) protruding radially in a second direction, opposite the first direction, beyond a radial extent of the bearing surface (Fig. 5).

Regarding claims 3 and 6, the Kawai et al. reference discloses the sleeve element comprising PTFE (Col. 3, Lines 63-67). Note that PTFE is known to be resilient and will allow the seal to be compressed.

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Regarding claim 7, the Kawai et al. reference discloses a first sealing feature (left most element 14) configured to be biased laterally into a first recess (recess under left most element 14).

Regarding claim 8, the Kawai et al. reference discloses a second sealing feature (right most element 14) configured to be biased laterally into a second recess (recess under right most element 14).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4, 13, 101-104, and 108-112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al. in view of Prasse et al. (US Patent No. Re 31,005).

Regarding claims 4 and 13, the Kawai et al. reference discloses the invention substantially as claimed in claim 1.

However, the Kawai et al. reference fails to explicitly disclose the annular body interferingly engaging the piston element surface as well as the annular body being continuous.

The Kawai et al. reference, a piston ring, discloses that a piston ring can be split or continuous (Col. 4, Lines 47-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the annular body of the Kawai et al. reference continuous in view of the teachings of the Prasse et al. reference in order to provide an annular body without any breaks to ensure a solid seal. Note that it would be obvious that the continuous annular ring would be interferingly engaging the piston element surface because the modified annular body would be shrink fit to fit within the groove (Prasse et al. Col. 4, Lines 49-52).

Regarding claim 101, 108, and 109, the Kawai et al. reference discloses a sleeve element (10B) for sealing between a piston (20) and a bore surface (30a) comprising:

a substantially annular body (Fig. 5) including an inner surface, an outer surface, a first end region (region at left most element 14), and a second end region (region at right most element 14), the substantially annular body sized and configured to interferingly engage the piston element surface with the inner surface of the substantially annular body and maintain circumferential contact therebetween, wherein at least a portion of the outer surface is configured as a bearing surface (e.g. planar portion of 13);

wherein at least a portion of the first end region of the annular body is configured to be biased laterally into a recess (recesses formed with surface 21) formed in the piston (Figs. 5 and 6);

at least one sealing feature (14) formed on the substantially annular body proximate to the at least a portion of the first end region and longitudinally space from the bearing surface (Fig. 5), the at least one sealing feature being configured to be

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biased laterally into the at least one recess, the at least one sealing feature sized and configured to sealingly engage against the bore surface (Fig. 5); and

at least one depression (e.g. depression formed between sealing features 14) wherein at least a portion of the at least one depression is sized, located and configured to lie over the at least one recess (Fig. 6) to provide increased lateral flexure for the biasing of the at least a portion of the first end region into the at least one recess (Fig. 6), the at least one depression positioned proximate to the at least one sealing feature (Fig. 6) and wherein the at least one depression is longitudinally disposed between the at least one sealing feature and the bearing surface (Fig. 5). Note that at least part of the at least one depression of the Kawai et al. reference will be between the at least one sealing feature and the bearing surface.

However, the Kawai et al. reference fails to explicitly disclose the annular body interferingly engaging the piston element surface as well as the annular body being continuous.

The Kawai et al. reference, a piston ring, discloses that a piston ring can be split or continuous (Col. 4, Lines 47-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the annular body of the Kawai et al. reference continuous in view of the teachings of the Prasse et al. reference in order to provide an annular body without any breaks to ensure a solid seal. Note that it would be obvious that the continuous annular ring would be interferingly engaging the piston element surface because the

modified annular body would be shrink fit to fit within the groove (Prasse et al. Col. 4, Lines 49-52).

Regarding claims 102 and 110, the Kawai et al. reference, as modified in claims 101 and 109, discloses the at least one sealing feature including a surface (Kawai et al., e.g. surface of elements 14 in contact with bore surface 30a) protruding radially beyond a radial extend of the bearing surface (Kawai et al., Fig. 5).

Regarding claims 103, 104, 111 and 112, the Kawai et al. reference, as modified in claims 101 and 109, discloses the sleeve element comprising PTFE (Col. 3, Lines 63-67). Note that PTFE is known to be resilient and will allow the seal to be compressed.

#### ***Allowable Subject Matter***

4. Claims 49, 50, 54, 55, 57-60, 62, 63, 69, 91, 99, and 114-130 are allowed.
5. Claims 9, 105-107, and 113 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-4, 6-8, 13, 101-104, and 108-112 have been considered but are moot in view of the new ground(s) of rejection. The examiner would like to note that "a bearing surface" is only a surface and the new



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interpretation of the Kawai et al. reference meets all the limitations of independent claims 1, 101, and 109.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

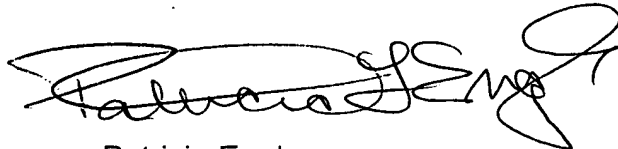
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL  
April 9, 2007

A handwritten signature in black ink, appearing to read 'Patricia Engle', with a large, stylized flourish extending from the end of the signature.

Patricia Engle  
Supervisory Examiner  
Tech. Center 3600